Geophysical Research Abstracts
Vol. 13, EGU2011-6108, 2011
EGU General Assembly 2011

Seismic Tomography Imaging around Guntur Volcano in Indonesia

Andri Dian Nugraha (1), Sri Widiyantoro (1), Awan Gunawan (2), and Gede Suantika (3)

(1) Geophysics Group, Faculty of Mining and Petroleum Engineering, Institut Teknologi Bandung, Indonesia (nugraha@gf.itb.ac.id), (2) Faculty of Earth Sciences and Technology, Institut Teknologi Bandung, Indonesia, (3) Center for Volcanology and Geology Hazard Mitigation, CVGHM, Bandung, Indonesia

Indonesia is located in the very active tectonic region which is influenced by four major tectonic plates. As a result, Indonesia has 127 active volcanoes and high seismicity activities. We conducted travel time tomography inversion to image seismic velocity structures (Vp, Vs, and Vp/Vs ratio) beneath Guntur volcano that is located in West Java Indonesia. The Guntur volcano is one of the active volcanoes in Indonesia, although large eruptions have not been occurred for about 160 years. We used volcanic earthquakes data from seismic stations deployed by CVGHM. For tomography inversion procedure, we set grid nodes with horizontal spacing of 2 x 2 km2 and vertical spacing of 2 km. We estimated 3-D Vp, Vp/Vs ratio structures simultaneously with hypocenter adjustments. Our preliminary results show Vp, Vp/Vs ratio and relocated volcanic earthquakes beneath the Guntur volcanic complex. Generally, the low velocities are observed beneath the Guntur volcano at depth of about 2 km. These anomalies may be associated with fluid or hot material regions. More detailed investigation of the seismic velocity structures is very important for understanding physical properties and volcanic hazards mitigation beneath the active volcano. Our further interpretations will use comparisons with other types of studies in this region.